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An Interprofessional, Tailored Behavioral Intervention for Sleep Problems in Autism: Use of Sensory Data to Inform Intervention

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An Interprofessional, Tailored Behavioral Intervention for Sleep Problems in Autism: Use of Sensory Data to Inform Intervention

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Background

Prevalence of ASD has increased to 1 in 68 children (CDC, 2014).

Chronic severe insomnia (sleep disturbance) is one of the most common co-occurring conditions in children with ASD (60-80%) (Liu et al., 2006; Souders et al., 2009; Wiggs & Store, 2004).

Causes are multi-factorial including behavioral, biological and cultural mechanisms (Kotagal & Broomall, 2012; Malow & McGrew, 2008).

Parents report that both sensory sensitivities (to the environment) and anxiety may be contributing factors (Souders et al., 2009).

Occupational therapists can address these factors and help improve sleep quality by implementing sensory and environmental strategies.

Purpose

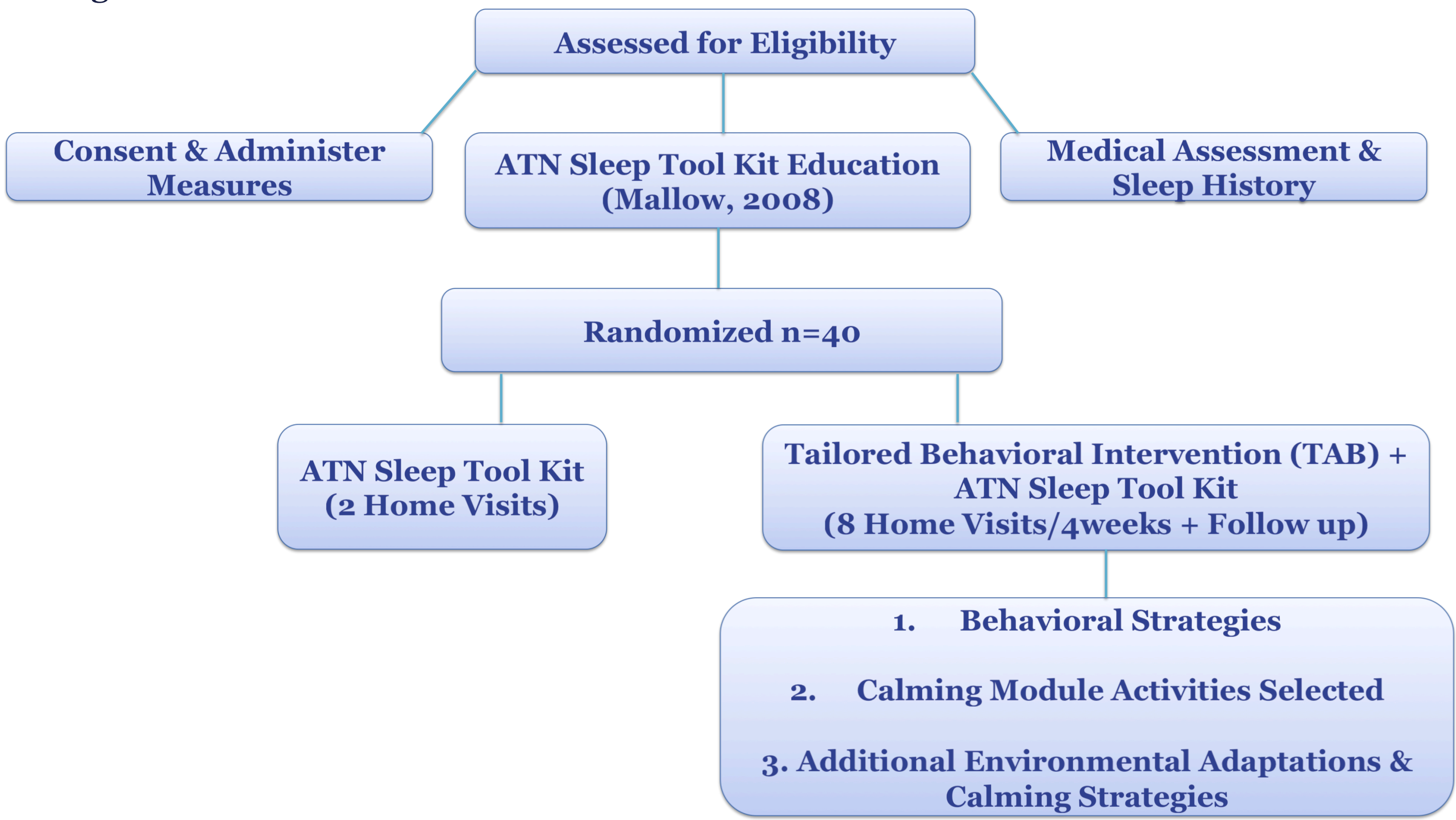
The purpose of this poster is to demonstrate how Sensory Profile data informed occupational therapy sleep interventions for two participants as part of an Interprofessional Tailored Behavioral Intervention study.

Methods

Comparative Effectiveness Design

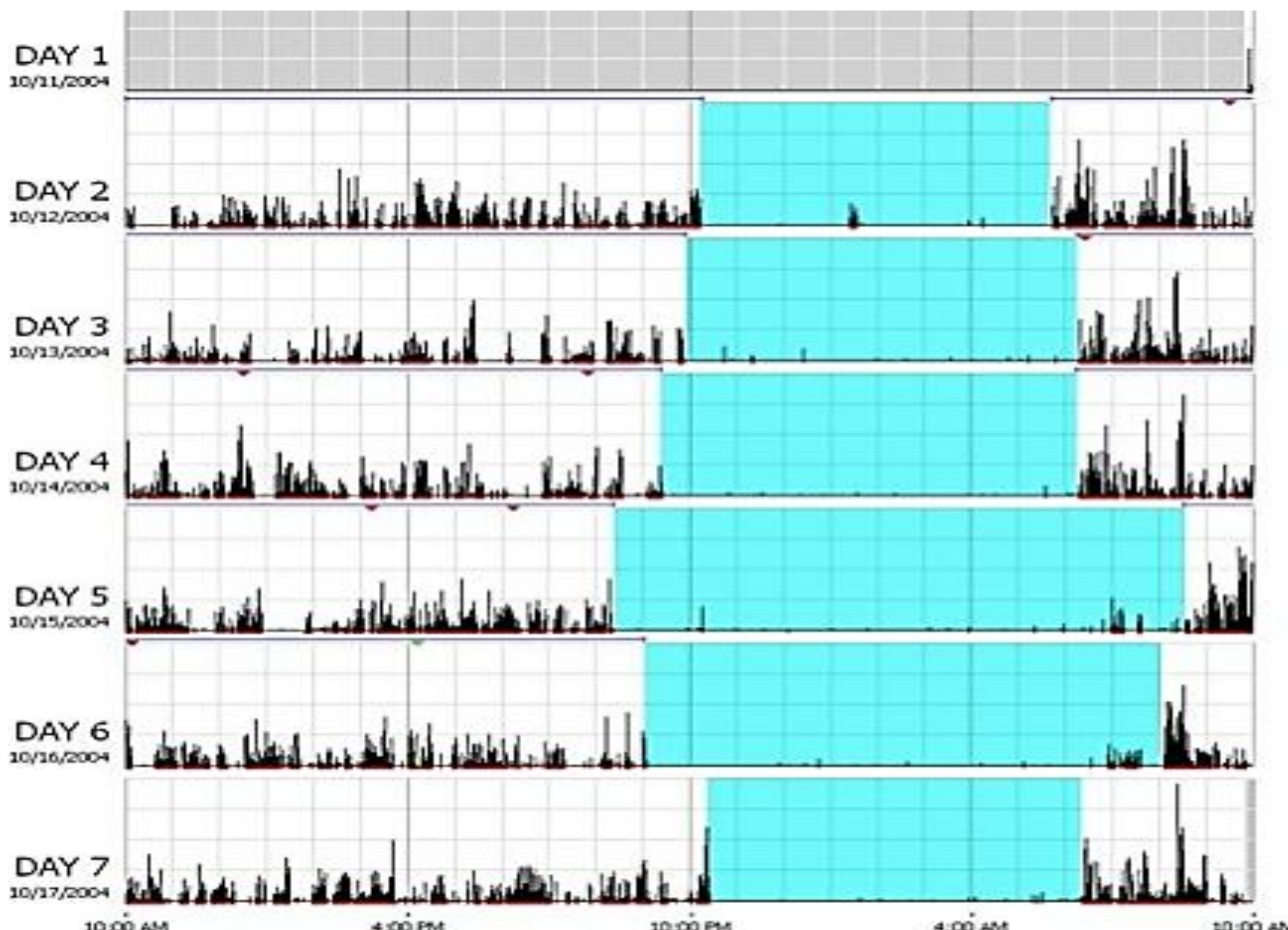
Eligibility Criteria:

- Autism Dx (ADOS)
- Insomnia (CSHQ, Actigraphy)
- Ages: 6-10



Measures:

- **Anxiety Measures:** Pediatric Anxiety Rating Scale
- **Sensory Measures:** Sensory Profile
- **Sleep Measures:** Sleep Diary, Child Sleep Habits Questionnaire (CSHQ), Actigraphy



Actigraphy Example

(National Sleep Foundation, 2015)

Case 1: Male, 9 years-old

Sensory Profile Subscales	Typ. Perf.	Prob. Diff.	Def. Diff.	Specific behaviors noted from parent report on Sensory Profile	Strategies used to improve sleep
Auditory Processing			✓	Sensitivity; Distracted around high levels of noise	Quiet sleep environment
Visual Processing	✓				
Vestibular Processing			✓	Movement seeking behaviors	Heavy blanket; Calming Module activities during hour before bed: Observing Your Breath, Yoga Poses for Insomnia, Progressive Muscle Relaxation
Touch Processing			✓	Sensitive to tooth-brushing and some fabrics; Seeking behaviors for certain textures	Earlier nighttime hygiene routine to offset arousal
Multisensory Processing			✓	Attention difficulties; Unaware in busy environment; Hangs on people or objects	Decrease stimuli in sleep environment (minimal toys)
Oral Sensory Processing		✓			
Sensory processing related to endurance/ tone			✓	Decreased endurance; Tires easily	Increase activity level during day/after school
Modulation related to body position and movement	✓				
Modulation of movement affecting activity level	✓				
Modulation of sensory input affecting emotional responses			✓		Behavioral intervention
Modulation of visual input affecting emotional responses and activity level			✓		Environmental adaptation
Emotional/social response			✓		Parent education
Behavioral outcome of sensory processing			✓	Difficulties with changes in routine	Use of visual schedule & bedtime pass
Items indicating thresholds for response			✓		Use of visual schedule and behavioral intervention

Case 1 Outcomes

Pre Intervention Sleep Behavior

- Sleeps with parents
- Increased sleep latency (28 minutes to fall asleep)
- Wakes during night/restless (477 sleep minutes; 117 wake minutes)
- Wakes at 5am

Post Intervention Sleep Behavior

- Sleeps in own room
- Decreased sleep latency (21 minutes)
- Decreased waking during night (485 sleep minutes; 65 wake minutes)
- Wakes at 5-6am with dad

Case 2: Male, 8 years-old

Sensory Profile Subscales	Typ. Perf.	Prob. Diff.	Def. Diff.	Specific behaviors noted from parent report on Sensory Profile	Strategies used to improve sleep
Auditory Processing			✓	Sensitivity; Distracted around high levels of noise	Reinforce quiet sleep environment
Visual Processing		✓		Some difficulty with visual discrimination	Simple visual schedule; Use of verbal cues
Vestibular Processing			✓	Movement seeking behaviors	Increase activity level/ heavy work exercises after school; Deep pressure massage before bed; Calming Module activities during hour before bed: Observing Your Breath, Yoga Poses for Insomnia; Quiet Reading
Touch Processing		✓			
Multisensory Processing			✓	Attention difficulties; Unaware in busy environment; Hangs on people or objects	Decrease stimuli in sleep environment (minimal toys)
Oral Sensory Processing		✓		Smells non-food objects	Use of scented candle during massage
Sensory processing related to endurance/ tone		✓			
Modulation related to body position and movement	✓				
Modulation of movement affecting activity level	✓				
Modulation of sensory input affecting emotional responses			✓	Rigid rituals and routines; Difficulty with changes	Use of visual schedule; Bed time pass; Behavior chart; Social story
Modulation of visual input affecting emotional responses and activity level	✓				
Emotional/social response			✓	Poor frustration tolerance; Anxious	Parent education
Behavioral outcome of sensory processing	✓				
Items indicating thresholds for response			✓	Deliberately smells objects	Sleeping with mom's pajamas around pillow

Case 2 Outcomes

Pre Intervention Sleep Behavior

- Sleeps in brother's room with mom
- Increased sleep latency (47 minutes to fall asleep)
- Wakes during night/restless (209 sleep minutes)
- Early bedtime/early wake time

Post Intervention Sleep Behavior

- Sleeps in own room
- Decreased sleep latency (12 minutes)
- Decreased waking during night (511 sleep minutes)
- Later bedtime/later wake time

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